

ART. X. *Case of Gun-shot Wound of the Hand, Fore Arm, and Arm, with Fracture of the Humerus, successfully treated.* By R. W. LINDSAY, M. D., of Alexandria, D. C.

L——— E———, ætat. 10, was wounded, April 11th, 1840, by the accidental discharge of a fowling piece, whilst holding it by the muzzle and drawing it towards him. The load entered the upper and thick part of the palm of the hand, slightly grazing the wrist for about an inch, then tearing up the muscles in the most shocking manner, half way up the fore-arm, exposing the tendons to view; it entered the arm anteriorly a few lines above the bend of the elbow, fracturing the os humeri about an inch and a half above the joint, then passing upwards, about half way up the arm, it made a slight opening posteriorly, but without any portion of the load apparently having made its exit.

On the first view, this case presented a very formidable appearance, and considering the situation of the wound in the arm, it appeared almost impossible that the brachial artery could have escaped very serious injury; but on examining the pulse, it was found to beat with the same force and regularity as in the sound arm, which showed, that if the artery was injured at all, it was not so seriously as to endanger sloughing and hæmorrhage.

Professor Gibson says, that in some cases, large arteries are pushed entirely to one side, without sustaining injury. On examining the course of the artery at the time, and since the wound healed, this must have taken place to some extent in the case under consideration.

On introducing the finger between the ends of the divided bones, there appeared to be simply a transverse fracture; no loose pieces of bone could be felt. The arm was now swelled to double the natural size, the pulse 110 in the minute, but regular, and, though reaction had completely taken place, there was nothing in the action of the pulse, or the general system that indicated venesection.

In consultation, five physicians being present, the following considerations were discussed: In the first place, mortification might take place in a day or two, and deprive the patient of the chance of amputation; the brachial artery might be so injured as to slough, and the patient run the risk of dying from hæmorrhage; the capsular ligament of the joint might be torn up, consequently greater danger to be apprehended from inflammation; tetanus might supervene, and in taking into view the extent of the injury, and the part wounded, this seemed a not unlikely occurrence. On the contrary, the patient was young and healthy, and no constitutional symptoms had occurred to induce the belief, that any important blood vessels or nerves had been seriously injured.

A majority were in favour of immediate amputation, but as there was a want of unanimity, it was determined to wait until a surgeon from Georgetown should arrive. When this occurred a more thorough examination took place, extension, and counter extension were made, which enabled us to examine the case more satisfactorily, and I now became fully convinced of the correctness of the opinion I had given in the first instance.

The patient passed a tolerable night, sleeping composedly for half an hour or an hour at a time, and in this way sleeping two thirds of the night: though when awake he seemed to suffer much from pain. The pulse continued at about 110, and regular, but did not at any time indicate the necessity of venesection.

In the morning a physician from Washington City arrived, and another consultation took place, which resulted in a determination to make an effort to save the arm.

Our attention was now turned to the dressing best adapted to the wounds, and to the general treatment. The patient had been placed in the recumbent position, the arm extended and laid on a pillow, and by this time the limb had become so painful, that the slightest motion created the most excruciating pain. Cold water dressings had been used, giving very marked relief. Pledgets of lint were applied, and kept constantly wet with cold water; and I would here observe that the effects of the cold water dressings were most remarkable. At frequent intervals the patient suffered severe pain, particularly when roused from a slumber, and in no instance did the cold water fail to give more or less relief, and had a most remarkable effect in tranquilizing and composing him.

In Florida, during the campaign of 1836, I had an opportunity of treating a great many cases of gun-shot wounds with the cold water dressings, but in no case were its beneficial effects more remarkable, than in the one under consideration, and I cannot too earnestly recommend this mode of treatment in the first stage of all gun-shot wounds.

Aperient medicines were administered, and the antiphlogistic system was strictly attended to, throughout the whole treatment.

The water dressings were continued three days, we then substituted emollient poultices in their place, the sloughing was considerable, and on the fifth or sixth day the wounds became fetid: to correct this, we used the charcoal and carrot poultice, which in a few days had the desired effect.

The wounds were now suppurating, and in every respect in an improved condition, and were now dressed with cerate. The pulse during this time ranged from 100 to 115, but when the suppurative process was completely established there was an evident improvement, the pulse becoming less frequent, and the general system much improved, and every thing progressing favourably, even beyond our anticipations. At this stage of the case it became necessary to use tonics, and a more nutritious diet.

We likewise used the syrup of sarsaparilla, and from its beneficial effects on the general system, it had a happy tendency to facilitate the healing process.

After the suppurative process was established, shot from time to time were discharged, together with the wadding of the gun. The load, however, had taken different directions, and at some distance from the posterior openings, an evident fluctuation was felt; on opening it, matter was very freely discharged, and with a small scoop a number of shot were extracted.

The limb was now placed in a curved splint made of tin, extending the whole length of the arm and forearm; this gave better support to the limb, and enabled us to move and dress it with greater facility and ease to the patient.

At the end of three weeks the free discharge from the wounds was much abated. On measuring the arm, it was found to be at least an inch shorter than the sound one, extension and counter extension were necessary, which was effected by the use of the curved splint, it being first well lined with surgeon's lint, and then applied with a Scultetus' bandage. The bandages were applied the whole length of the arm and fore arm, and answered the object most effectually; as we anticipated the bones commenced uniting, and in about four weeks reunion was established.

It was now important to turn our attention to the elbow joint, there being danger that ankylosis might take place. To prevent this, a carved splint with a hinge at the elbow was used, which was first lined, and then applied with the common roller; to the upper part of the splint were attached two pieces of wire, the lower ends of the wires ending in hooks, which were hooked in holes in the lower portion of the splint, these holes were placed at intervals of an inch, and we were thus enabled by degrees to flex the arm. At this time the arm can be used freely and without any difficulty, from the extended position, to something more than a right angle. The muscular action of the arm is fast recovering, and will no doubt soon be restored. The arm is now of the natural size with the exception of the fractured portion, which is enlarged from the ossific matter thrown out in the reunion of the bones. A gradual absorption is going on, and at this time camphor liniment is used to excite the action of the absorbents to remove any extraneous matter that may exist about the joint, and which prevents its full motion. This, in time, there is little doubt will be effected, but as such a process must necessarily be slow, it may be some months before the arm is fully restored in every respect.

On no subject have the opinions of surgeons been more contradictory, than as to the propriety or impropriety of amputation, generally for the want of a full and and fair investigation. For instance, military surgeons have been accused of amputating very unnecessarily; but when we reflect that after an engagement, the wounded are hurried from place to place, and deprived, as they must be, of the requisite attention, their wounds not dressed for days

together; that consequently great pain and inflammation must necessarily follow, which may endanger or even sacrifice the patient—under these circumstances with a full view of the case before him, the prudent and experienced surgeon amputates on the field of action. But in domestic life, where every convenience and comfort can at once be afforded the patient, the case is very different. I hold it improper to amputate here, except where the prospect of saving the limb is most unfavourable; and in forming a decision in all cases, particularly those occurring in civil society, the peculiarities of constitution, the age, habits, &c., of the patient, should always be carefully taken into consideration.

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